

REMARKS/ARGUMENTS

STATUS OF THE CLAIMS

Prior to the entry of this Amendment, claims 19-28, 30, 31, and 37-63 were pending in the application. By this Amendment, claims 19, 20, 22-28, 37, 41-43, 46, 49, and 53-56 are amended, leaving claims 21, 30, 31, 40, 44, 45, 47, 52, and 57 unchanged. Claims 1-18, 29, and 32-36 were canceled and claims 38, 39, 48, 50, 51, and 59 were withdrawn in response to previous Office actions.

OBJECTIONS TO THE DRAWINGS

On pages 2-3 of the Office action, the drawings are objected to for omitting features of claims 25 and 31. The drawings are also objected to for being of generally poor/uneven line quality, including handwritten reference characters, and not being of sufficient size to make details readily discernable.

Fig. 6 has been amended to specifically identify the maximum diameter of the oblong cross-section referred to in amended claim 25. The Applicant respectfully submits that the fan mounting arms and attachments referred to in claim 31 are identified by reference numbers 90, 92, and 94 in Fig. 1 and paragraph [0047]. Formal replacement drawings of all figures are submitted with this response to address the quality deficiencies of the drawings originally filed with the application. Withdrawal of the objections to the drawings is therefore respectfully requested.

OBJECTIONS TO THE SPECIFICATION

On pages 4-5 of the Office action, the specification is objected to for including legal phraseology. The specification is also objected to for failing to provide proper antecedent basis for the term "engagement element" claimed in claim 46, and all claims depending therefrom.

The specification has been amended to omit the objectionable language from the abstract. The Applicant respectfully submits that the term "engagement element" is a generic term encompassing various configurations of elements provided to enable the engagement of one heat exchanger to another (i.e., flanges, projections, recesses, etc.), as would be understood by one of ordinary skill in the art upon examination of the application. The Applicant also submits that while this term is generic to multiple species, it reads on Applicant's elected species (Species 2

identified by the Examiner in the Office action dated May 3, 2010), and claims reciting this element should be substantively examined. Withdrawal of the objections to the specification is therefore respectfully requested.

CLAIM REJECTIONS- 35 U.S.C. § 112

On pages 5-7 of the Office action, claims 19-28, 30, 31, 37, 40-47, 49, 52-58, and 60-63 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

The claims have been amended to address the antecedent basis and indefiniteness issues identified by the Examiner. Regarding claims 24 and 40, an “axial” dimension of a hole/aperture is the dimension of the hole/aperture in the direction it extends through the surrounding material, as would be understood by one of ordinary skill in the art. Withdrawal of the rejections of claims 19-28, 30, 31, 37, 40-47, 49, 52-58, and 60-63 under 35 U.S.C. § 112, second paragraph, is therefore respectfully requested.

CLAIM REJECTIONS- 35 U.S.C. § 102

On pages 7-8 of the Office action, claims 19, 22-24, 26, 27, 30, 46, 47, 52-58, 60, and 62 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 2,013,186 (hereinafter “Price”).

Claim 19 is hereby amended and calls for:

A heat exchanger block comprising
first and second heat exchangers, the first and second heat exchangers each including a pair of longitudinal headers with flow passages extending between said longitudinal headers, an end of a header of the first heat exchanger positioned adjacent and detachably connected to an end of a header of the second heat exchanger, wherein
one of said header ends includes a recessed portion and a hole,
an other of said header ends includes a flange receivable in said recessed portion and a hole through the flange aligned with the hole of the one header end; and
a fastener received in said aligned holes;
wherein an internal volume defined by the header of the first heat exchanger is fluidly isolated from an internal volume defined by the header of the second heat exchanger.

Claim 46 is hereby amended and calls for:

A heat exchanger block comprising:
a first heat exchanger with a first header defining an interior volume and forming a manifold for fluid flow, an end of the first header having an engagement element;
a second heat exchanger with a second header defining an interior volume and forming a manifold for fluid flow, the interior volume of the first header being fluidly isolated from the interior volume of the second header, an end of the second header having an engagement element that corresponds to the engagement element of the first heat exchanger;
wherein the first heat exchanger is positioned adjacent the second heat exchanger and the engagement element of the first heat exchanger is secured to the engagement element of the second heat exchanger in order to allow limited movement of the first heat exchanger relative to the second heat exchanger.

Claim 58 is hereby amended and calls for:

A method of forming a heat exchanger block from a first heat exchanger comprising a portion of a fluid circuit for cooling a first fluid and a second heat exchanger comprising a portion of a fluid circuit for cooling a second fluid which is fluidly isolated from the fluid circuit for the first fluid, the method comprising the acts of:
providing the first heat exchanger with a first header having an end with a flange and a first aperture defined through the flange, and the second heat exchanger with a second header having an end through which a second aperture is defined;
positioning the first and second headers such that the first and second apertures are in alignment; and
removably connecting the first and second headers of the first and second heat exchangers with a fastener inserted through the aligned first and second apertures.

Price discloses a heat exchanger comprised of a stack of fluidly connected modules A, B, each of which provides a flow path for a first fluid 3 and a flow path for a second fluid 7. Each module A includes two bolting wings 1 defining bossed apertures 2, 6 providing a fluid inlet for each fluid and bossed apertures 4, 9 providing a fluid outlet for each fluid to the adjacent module B. The stack of modules A, B are secured together by bolts 10 extending through openings 10 in the bolting wings 1 to provide an assembled heat exchanger with two serpentine flow paths for heat exchange between two fluids. (Price; Figs. 1-3; Col. 2, line 27 - Col. 3, line 66).

Price fails to disclose, teach, or suggest a heat exchanger block including, among other things, first and second heat exchangers, an end of a header of the first heat exchanger positioned adjacent and detachably connected to an end of a header of the second heat exchanger such that

“one of said header ends includes a recessed portion and a hole, an other of said header ends includes a flange...and a hole through the flange aligned with the hole of the one header end, and a fastener received in said aligned holes” as claimed by amended claim 19, or “an internal volume defined by the header of the first heat exchanger is fluidly isolated from an internal volume defined by the header of the second heat exchanger” as also claimed by amended claim 19. Price similarly fails to disclose, teach, or suggest a heat exchanger block including, among other things, “a first heat exchanger with a first header defining an interior volume...a second heat exchanger with a second header defining an interior volume..., the interior volume of the first header being fluidly isolated from the interior volume of the second header” as claimed by amended claim 46. Price also fails to disclose, teach, or suggest a method of forming a heat exchanger block from a first heat exchanger comprising a portion of a fluid circuit for cooling a first fluid and a second heat exchanger comprising a portion of a fluid circuit for cooling a second fluid which is fluidly isolated from the fluid circuit for the first fluid” as claimed by amended claim 58. Thus Price does not anticipate the subject matter of claims 19, 46, and 58 of the present application.

Claims 22-24, 26, 27, 30, 27, 52-57, 60, and 62 depend from one of amended claims 19, 46, and 58, and are allowable based upon independent claims 19, 46, and 58, and upon other elements and features of claims 22-24, 26, 27, 30, 27, 52-57, 60, and 62 not discussed herein. Withdrawal of the rejections of claims 19, 22-24, 26, 27, 30, 46, 47, 52-58, 60, and 62 in view of Price is therefore respectfully requested.

On pages 7-8 of the Office action, claims 37, 40-47, 52-58, 60, and 62 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 2,044,457 (hereinafter “Young”).

Claim 37 is hereby amended and calls for:

A heat exchanger block comprising:
a first heat exchanger having a first header from which tubes extend, the first header having an end from which a flange extends, and an aperture defined through the flange, the first heat exchanger defining a portion of a fluid circuit of a first fluid to be cooled;
a second heat exchanger having a second header from which tubes extend, the second header having an end, and an aperture defined through a portion of the end of the second header, the second heat exchanger defining a portion of a fluid circuit of a second fluid to be cooled, the second fluid circuit fluidly isolated from the first fluid circuit;

the end of the first header of the first heat exchanger positioned adjacent the end of the second header of the second heat exchanger such that the apertures are in alignment; and
a fastener positioned through the aligned apertures in order to detachably connect the first and second heat exchangers.

Young discloses a heat exchanger comprised of a stack of connected modules A, B, C, D, each of which includes flow paths for a fluid through tubes 12 supported between headers 10, 11. The modules are positioned with respect to each other by mating lugs 17 and secured together by a bolt 20 extending through openings 19, 30 in the headers 10, 11 to provide an assembled heat exchanger with a single serpentine flow path for heat exchange between a fluid flowing in the tubes 12 and a fluid surrounding the tubes 12. (Young; Figs. 1-3; Col. 2, line 3 - Col. 3, line 11).

Young fails to disclose, teach, or suggest a heat exchanger block including, among other things, “a first heat exchanger...defining a portion of a fluid circuit of a first fluid to be cooled” and “a second heat exchanger...defining a portion of a fluid circuit of a second fluid to be cooled, the second fluid circuit fluidly isolated from the first fluid circuit” as claimed by amended claim 37, or “a first header having...an end from which a flange extends, and an aperture defined through the flange...a second header having...an aperture defined through a portion of the end of the second header...and a fastener positioned through the aligned apertures” as also claimed by amended claim 37. Young similarly fails to disclose, teach, or suggest a heat exchanger block including, among other things, “a first heat exchanger with a first header defining an interior volume...a second heat exchanger with a second header defining an interior volume...the interior volume of the first header being fluidly isolated from the interior volume of the second header” as claimed by amended claim 46. Young also fails to disclose, teach, or suggest “a method of forming a heat exchanger block from a first heat exchanger comprising a portion of a fluid circuit for cooling a first fluid and a second heat exchanger comprising a portion of a fluid circuit for cooling a second fluid which is fluidly isolated from the fluid circuit for the first fluid” as claimed by amended claim 58. Thus Young does not anticipate the subject matter of claims 37, 46, and 58 of the present application.

Claims 40-45, 47, 52-57, 60, and 62 depend from one of amended claims 37, 46, and 58, and are allowable based upon independent claims 37, 46, and 58, and upon other elements and features of claims 40-45, 47, 52-57, 60, and 62 not discussed herein. Withdrawal of the

rejections of claims 37, 40-47, 52-58, 60, and 62 in view of Young is therefore respectfully requested.

On pages 7 and 9 of the Office action, claims 19, 21-28, 30, 31, 37, 40-47, 49, 52-58, and 60-63 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,651,816 (hereinafter "Struss").

Struss discloses a heat exchanger module including multiple heat exchangers 12, 14, 16 secured together by bars 18, 20 disposed between adjacent sides. Heat exchangers 12, 14 each have an upper header 22 and a lower header 24 connected by tubes 26 for fluid flow therebetween. Side walls 36 of adjacent heat exchangers 12, 14 define channels 30, 32 and include tabs 38 for attachment to bar 18 disposed within channels 30, 32. The tabs 38 are purposely staggered such that the heat exchangers 12, 14 are positioned in close side by side relation without contact in order to prevent corrosion. Headers 50, 52 of heat exchanger 16 are mounted to bars 20 with legs 58 in order to secure heat exchanger 16 to heat exchangers 12, 14 and provide a space 62 therebetween. (Struss et al.; Figs. 1-3; Col. 3, line 44- Col. 4, line 41).

Struss fails to disclose, teach, or suggest a heat exchanger block including, among other things, first and second heat exchangers an end of a header of the first heat exchanger positioned adjacent and detachably connected to an end of a header of the second heat exchanger such that "one of said header ends includes a recessed portion and a hole, an other of said header ends includes a flange...and a hole through the flange aligned with the hole of the one header end, and a fastener received in said aligned holes" as claimed by amended claim 19, or "an internal volume defined by the header of the first heat exchanger is fluidly isolated from an internal volume defined by the header of the second heat exchanger" as also claimed by amended claim 19. Struss similarly fails to disclose, teach, or suggest a heat exchanger block including, among other things, "a first heat exchanger...defining a portion of a fluid circuit of a first fluid to be cooled" and "a second heat exchanger...defining a portion of a fluid circuit of a second fluid to be cooled, the second fluid circuit fluidly isolated from the first fluid circuit" as claimed by amended claim 37, or "a first header having...an end from which a flange extends, and an aperture defined through the flange...a second header having...an aperture defined through a portion of the end of the second header...and a fastener positioned through the aligned apertures" as also claimed by amended claim 37. Struss also fails to disclose, teach, or suggest a heat

exchanger block including, among other things, “a first heat exchanger with a first header defining an interior volume...a second heat exchanger with a second header defining an interior volume...the interior volume of the first header being fluidly isolated from the interior volume of the second header” as claimed by amended claim 46. Struss further fails to disclose, teach, or suggest a method of forming a heat exchanger block from a first heat exchanger comprising a portion of a fluid circuit for cooling a first fluid and a second heat exchanger comprising a portion of a fluid circuit for cooling a second fluid which is fluidly isolated from the fluid circuit for the first fluid” as claimed by amended claim 58. Thus Struss does not anticipate the subject matter of claims 19, 37, 46, and 58 of the present application.

Claims 21-28, 30, 31, 40-45, 47, 49, 52-57, and 60-63 depend from one of amended claims 19, 37, 46, and 58, and are allowable based upon independent claims 19, 37, 46, and 58, and upon other elements and features of claims 21-28, 30, 31, 40-45, 47, 49, 52-57, and 60-63 not discussed herein. Withdrawal of the rejections of claims 19, 21-28, 30, 31, 37, 40-47, 49, 52-58, and 60-63 in view of Struss is therefore respectfully requested.

CLAIM REJECTIONS- 35 U.S.C. § 103

On pages 9-10 of the Office action, claim 20 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Price.

As discussed above, Price does not anticipate the subject matter of independent claim 19. Claim 20 depends from amended claim 19, and is allowable based upon independent claim 19, and upon other elements and features of claim 20 not discussed herein. Withdrawal of the rejection of claim 20 in view of Price is therefore respectfully requested.

CONCLUSION

In view of the foregoing, the Applicant respectfully requests reconsideration and allowance of claims 19-28, 30, 31, 37, 40-47, 49, 52-58, and 60-63 and also requests that the Examiner contact the undersigned Attorney of Record in the case that this may help to advance prosecution of the current application.

Respectfully submitted,

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